

Serving Your Community

Creating a Function Rule Using Donations Data



QUEST 4 PRE-CAL

STATE FAIR OF TEXAS CURRICULUM

The State Fair is not just about games and shopping; it offers many other attractions. One large one is Big Tex Urban Farms, whose produce is grown, harvested, and donated to the local community. The rate of produce donated each week can be represented mathematically. Let's collect some data and represent it as a function!



During this Live @ the Fair Quest, you will:

- ★ Apply produce data from Big Tex Urban Farms to represent a function rule
- ★ Write the inverse of the function rule
- ★ Design an artwork that works with positive and negative space
- ★ Research one of the crops you discovered at Big Tex Urban Farms, in depth.



Standards

- ★ Math (Pre-Cal) TEKS: PC.2.e
- ★ Art TEKS: Art I: 1A, 1B, 1C, 2F, 4A; Art II: 2A, 4C
- ★ ELAR TEKS: E4(20)(B), E4(21)(A), E4(21)(B), E4(23)(D), E4(23)(E)
- ★ Career Development TEKS: PS.5.C; CP.4.G; CPL.3.E; CPL.4.A



Tomatoes at Big Tex Urban Farms

Before You Go – 15 min prep time, 45 min teaching time

- ★ Review using data to create regressions of functions (linear, quadratic, exponential, etc.)
- ★ Use technology to create the regressions (stat plot and regressions)
- ★ Teach definition of an inverse
- ★ Do practice problems of inverses from tables, graphs, and functions



Invitation

- ★ Invite students to attend the Fair to research the food grown and donated by Big Tex Urban Farms.



Plan Your Route

- ★ Locate the Fun on the Farm area on the State Fair of Texas map
- ★ From there, find Big Tex Urban Farms
- ★ Later, investigate the Greenhouse

Serving Your Community

Creating a Function Rule Using Donations Data



QUEST 4 PRE-CAL

STATE FAIR OF TEXAS CURRICULUM

STATE FAIR MAP



Optional Materials to Bring

- ★ Pen or Pencil
- ★ Notebook or Paper
- ★ Smartphone or Tablet
- ★ Camera



While You're There

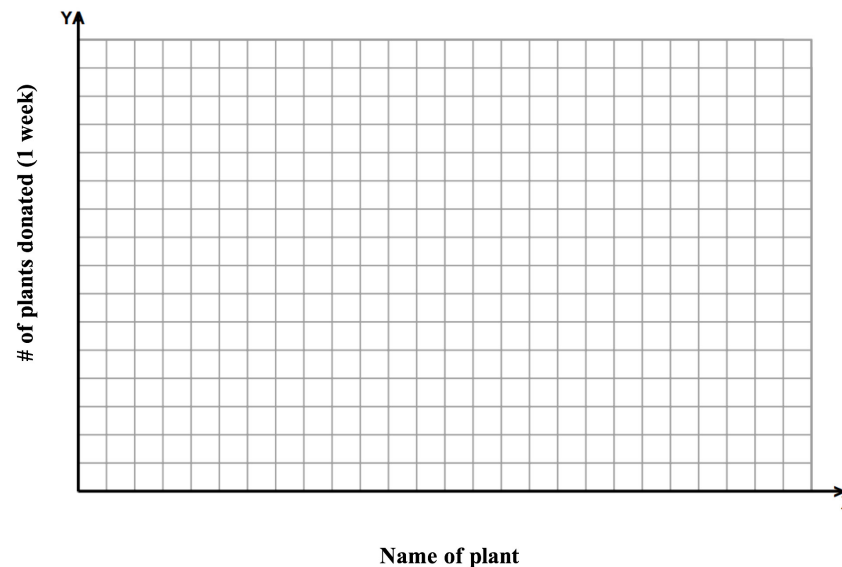
The objective of your visit is to observe the produce grown and interview a greenhouse worker.

★ **SERVING YOUR COMMUNITY:** Interview, collect data, and learn one way to serve your community.

- Observe the produce grown at Big Tex Urban Farms.
- Pick three particular plants to investigate.
 - ☐ Interview a worker to find out how much is donated each week for each plant, and make sure to record this information! You'll use it back at school for your project.

★ **POSITIVE/NEGATIVE SPACE (GREENHOUSE):** While at the Fair, go to the Greenhouse and view all of the amazing plants and flowers that are there.

- Take some time to sit and sketch, trying to focus only on the negative spaces around the plants.
- Also, take some photographs to refer to later for your project.
- You will also have an English activity that refers to your Greenhouse experience.
 - ☐ Interview a Greenhouse worker about his or her experience with farming both within and outside of the Fair, and take notes for later.



Serving Your Community

Creating a Function Rule Using Donations Data



QUEST 4 PRE-CAL

STATE FAIR OF TEXAS CURRICULUM



After the Fair – 30 min project

When you return to class following your State Fair visit, you will:

- ★ Plot each plant's data using stat plot on graphing calculator
- ★ Plot each on actual graphs to be turned in
- ★ Use the calculator to find the regression function for your data
- ★ Find the inverse of each calculated function
- ★ Turn in a final project on paper:
 1. Stat plot
 2. Regression Function
 3. Inverse Function in 3 representations:
- ★ Graph
- ★ Table
- ★ Equation (algebra showing all work)

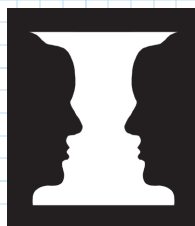


ART PORTION

Before You Go

What is the difference between positive and negative space in art?

- ★ Simply put, positive space is the object, and negative space is the space around it.
- ★ Although we tend to focus mostly on positive spaces when we view artwork, there are beautiful and interesting forms oftentimes happening in the negative space as well!
- ★ Before visiting the State Fair of Texas, take a look at this link that includes a short video on positive and negative space in art.
 - o <http://thevirtualinstructor.com/positive-and-negative-space.html>
- ★ After you view it, create a few practice sketches to get the hang of the technique. Sometimes it can be difficult to train your eye to focus on the space around an object when we have been used to, for so long, focusing on the object itself.



While You're There

See the main portion of the Quest for instructions.

When You Return

Using your sketches and photographs from the State Fair, create a negative space artwork of your favorite plant(s).

- ★ The medium is up to you, but these types of work are more successful when clean, crisp lines are used, so keep that in mind.
- ★ This can be in color, or black and white.
- ★ When finished, share your work with your peers and talk about your process as well as the creative choices that you made in your work.



ENGLISH PORTION

Farmers always have been, and will continue to be, a major part of the American economy. As you drive through Texas it is hard not to notice the dairy or crop farms that line the state's major highways and country roads.

While at the Fair, you interviewed a greenhouse worker about his or her experience with farming both within and outside of the Fair. When you return to class, you will work with a partner to research Texas farming.

1. Research one crop that is grown in the state of Texas.
2. Provide information on:
 - a) The origin of the crop
 - b) The history of the crop in the state
 - c) The requirements of growing the crop
 - d) Where the crop is primarily grown in the state
 - e) Trace one farm and its history of growing the crop in Texas
 - f) How much it costs to grow the crop
 - g) How much money the crop brings in
 - i) The growing cycle (how the field is prepared, when it is planted, etc.)
3. The paper should:
 - a) Be at least two pages
 - b) Be double-spaced
 - c) Use 12-point Times New Roman font
 - d) Contain at least eight different sources, cited in MLA format